

CORRECTED VERSION

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 January 2004 (22.01.2004)

PCT

(10) International Publication Number
WO 2004/008575 A1

(51) International Patent Classification⁷: **H01Q 3/08**, 21/00

JAMES, Geoffrey, Carlyle [AU/AU]; 3/723 Blaxland Road, Epping, NSW 2121 (AU).

(21) International Application Number:

PCT/AU2003/000897

(74) Agent: **SPRUGON & FERGUSON**; GPO Box 3898, Sydney, NSW 2001 (AU).

(22) International Filing Date: 11 July 2003 (11.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

2002950196

11 July 2002 (11.07.2002) AU

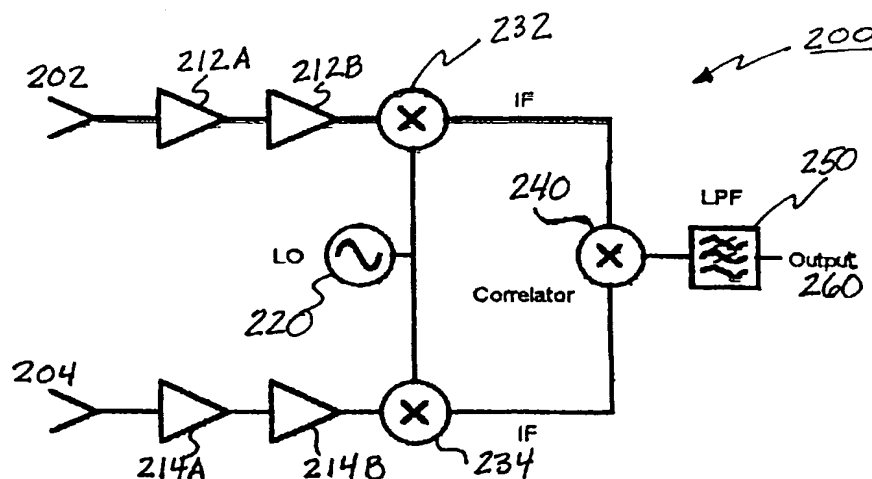
(71) Applicant (for all designated States except US): **COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION** [AU/AU]; Limestone Avenue, Campbell, ACT 2612 (AU).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: REAL-TIME, CROSS-CORRELATING MILLIMETRE-WAVE IMAGING SYSTEM



(57) Abstract: A method and apparatus are disclosed for forming an image from millimetre waves. A field of view scanned using two geometrically orthogonal, intersecting copolarized fan beams (110, 120) to receive millimetre wave radiation. The received millimetre wave radiation from said fan beams are then cross-correlated (250, 650). Also, a method and antenna (400, 610) for receiving millimetre wave radiation are disclosed. The antenna includes first and second fan beam antennas (410, 420) for receiving millimetre wave radiation and a filter (430, 440) for rotating polarization of incident millimetre wave radiation through 90 degrees received by the second fan beam antenna (410). The respective first and second beams (110, 120) intersect and are co-polarized and geometrically orthogonal to each other. Still further, a millimetre wave imaging system (600) and method are also disclosed, which utilise an antenna (610) for receiving millimetre wave radiation, process the received millimetre wave radiation from the antenna (610), and build up the image (682) using a filtered, cross-correlated signal.



Published:

— *with international search report*

(15) Information about Correction:

see PCT Gazette No. 17/2004 of 22 April 2004, Section II

(48) Date of publication of this corrected version:

22 April 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.